

Sheet 1 of

FORM PTO1869  
(REV. 8-83)U.S. DEPARTMENT OF COMMERCE  
PATENT AND TRADEMARK OFFICE

ATTY. DOCKET NO.

SERIAL NO.

HARI.006USG

08/931,133

## INFORMATION DISCLOSURE STATEMENT

(Use several sheets if necessary)

APPLICANT

Eliyahou Harari et al.

FILED

September 16, 1997

GROUP

2785

## U. S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE
Pmc	A1	4 0 9 3 9 8 5	6/1978	Das			
	A2	4 2 7 9 0 2 4	7/1981	Schrenk			
	A3	4 6 1 6 3 1 1	10/1986	Sato			
	A4	4 7 1 8 0 4 1	1/1988	Baglee et al.			
	A5	4 7 8 5 4 2 5	11/1988	Lavelle			
	A6	4 8 0 0 5 2 0	1/1989	Iijima			
	A7	4 8 8 7 2 3 4	12/1989	Iijima			
	A8	4 9 4 9 2 4 0	8/1990	Iijima			
	A9	5 0 5 3 9 9 0	10/1991	Kreifels et al.			
	A10	5 0 7 0 4 7 4	12/1991	Tuma et al.			
✓	A11	5 0 9 5 3 4 4	3/1992	Harari			

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANS. (YES/1)
Pmc	B1	58 - 2 1 5 7 9 4	12/1983	Japan			Yes
	B2	58 - 2 1 5 7 9 5	12/1983	Japan			Yes
	B3	59 - 1 6 2 6 9 5	7/1984	Japan			Yes
	B4	60 - 2 1 2 9 0 0	10/1985	Japan			Yes
✓	B5	62 - 2 8 3 4 9 6	12/1987	Japan			Yes

## OTHER DOCUMENTS (Including Author, Title, Date, Pertinent pages, Etc.)

Pmc	C1	Lucero et al., "A 16 kbit Smart 5 V-only EEPROM with Redundancy," <i>IEEE Journal of Solid-State Circuits</i> , vol. SC-18, no. 5, pps. 539-543 (October 1983)
Pme	C2	Torelli et al., "An improved method for programming a word-erasable EEPROM," <i>Alta Frequenza</i> , vol. 52, no. 6, pps. 487-494 (Nov.-Dec. 1983)
Pmc	C3	Data sheet: "27F256 256K(32K x 8) CMOS Flash Memory," <i>Intel Corporation</i> , pps. 1-24 (May 1988)

EXAMINER

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FORM PT01449  
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## INFORMATION DISCLOSURE STATEMENT

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## U. S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE
pme	A12 5 2 2 6 1 6 8	7/1993	Kobayashi et al.			
	A13 4 2 1 0 9 5 9	7/1980	Wozniak			
	A14 4 6 4 2 7 5 9	2/1987	Foster			
	A15 4 4 5 6 9 7 1	6/1984	Fukuda et al.			
	A16 4 2 9 5 2 0 5	10/1981	Kunstadt			
	A17 4 6 1 7 6 2 4	10/1986	Goodman			
	A18 4 3 5 4 2 5 3	10/1982	Naden			
	A19 4 4 2 2 1 6 1	12/1983	Kressel et al.			
	A20 4 4 5 0 5 5 9	5/1984	Bond et al.			
	A21 4 6 5 4 8 4 7	3/1987	Dutton			
	A22 4 7 3 3 3 9 4	3/1988	Burkhard			

## FOREIGN PATENT DOCUMENTS

DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANS. (YES/N)
B6 60 - 0 7 6 0 9 7	4/1985	Japan			Abstr
B7 59 - 4 5 6 9 5	3/1984	Japan			Abstr
B8 61 - 9 6 5 9 8	5/1986	Japan			Abstr
B9 62 - 2 8 3 4 9 7	12/1987	Japan			Abstr
B10 63 - 1 8 3 7 0 0	7/1988	Japan			Abstr

## OTHER DOCUMENTS (Including Author, Title, Date, Pertinent pages, Etc.)

pme	C4	Preliminary Data Sheet, "48F512 512K Flash EPROM," SEEQ Technology, Incorporated, pps. 2-1 thru 2-12 (October 1988)
pme	C5	Advanced Data Sheet, "48F010 1024K Flash EPROM," SEEQ Technology, Incorporated, pps. 2-13 thru 2-24 (October 1988)
pme	C6	Lai, Robert S., Writing MS-DOS Device Drivers, The Waite Group, Inc., (September 1987), pp. i-xi and 235-319

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## U. S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE
pme	A23 4 8 9 6 2 6 2	1/ 1990	Wayama et al.			
	A24 4 9 4 5 5 3 5	7/ 1990	Hosotani et al.			
	A25 4 3 8 0 0 6 6	4/ 1983	Spencer et al.			
	A26 4 4 6 3 4 5 0	7/ 1984	Haeusele			
	A27 4 3 5 5 3 7 6	10/ 1982	Gould			
	A28 3 6 3 3 1 7 5	1/ 1972	Harper			
	A29 4 4 9 8 1 4 6	2/ 1985	Martinez			
	A30 4 9 2 4 3 3 1	5/ 1990	Robinson et al.			
	A31 4 4 7 9 2 1 4	10/ 1984	Ryan			
	A32 4 9 5 3 1 2 2	8/ 1990	Williams			
	A33 4 9 2 0 5 1 8	1/ 1990	Nakamura et al.			

## FOREIGN PATENT DOCUMENTS

DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANS. (YES/NO)
B11 0 0 8 6 8 8 6	8/ 1983	European Patent Appln.			
B12 2 1 3 6 9 9 2 A	9/ 1984	UK Patent Appln.			
B13 0 2 4 3 5 0 3 B1	7/ 1987	European Patent Appln.			
B14 0 3 0 0 2 6 4 B1	10/ 1989	European Patent Appln.			
B15 0 5 5 7 7 2 3	1/ 1987	AU Patent Abridgement			

## OTHER DOCUMENTS (Including Author, Title, Date, Pertinent pages, Etc.)

pme	C7	Miller, "Semidisk Disk Emulator," Interface Age, p. 102, November, 1982
pme	C8	Clewitt, "Bubble Memories as a Floppy Disk Replacement," 1978 NIDCON Technical Papers, vol. 2, pp. 1-7, Dec. 1978
pme	C9	Hancock, "Architecting a CCD Replacement for the IBM 2305 Fixed Head Disk Drive," Digest of Papers, Eighteenth IEEE Computer Society International Conference, pp. 182-184, 1979
pme	C10	Wilson, "1-Mbit flash memories seek their role in system design," Computer Design, vol. 28, no. 5, pps. 30-32 (March 1989)

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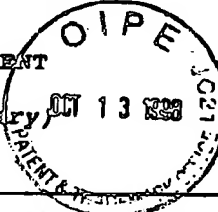
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## U. S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE
Pme	A34 4 4 9 3 0 7 5	1/1985	Anderson et al.			
	A35 4 7 9 6 2 3 3	1/1989	Awaya et al.			
	A36 4 9 1 4 5 2 9	4/1990	Bonke			
	A37 4 0 5 1 3 5 4	9/1977	Choate			
	A38 5 1 6 3 0 2 1	11/1992	Mehrotra et al.			
	A39 4 5 1 4 8 3 0	4/1985	Hagiwara et al.			
	A40 4 7 9 4 5 6 8	12/1988	Lim et al.			
	A41 4 6 1 2 6 4 0	9/1986	Mehrotra et al.			
	A42 4 5 2 7 2 5 1	7/1985	Nibby, Jr., et al.			
	A43 4 7 4 6 9 9 8	5/1988	Robinson et al.			
	A44 4 9 4 2 5 5 6	7/1990	Sasaki et al.			
	A45 4 4 0 5 9 5 2	9/1983	Slakmon			
	A46 4 6 7 2 2 4 0	6/1987	Smith et al.			
	A47 4 2 5 0 5 7 0	2/1981	Tsang et al.			
	A48 4 6 0 1 0 3 1	7/1986	Walker et al.			
	A49 4 2 8 1 3 9 8	7/1981	McKenny et al.			
✓	A50 4 6 1 7 6 5 1	10/1986	Ip, et al.			

## FOREIGN PATENT DOCUMENTS

DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANS. (YES/N)
B16 WO 8 4 0 0 6 2 8	2/1984	PCT W.I.P.O.			
B17 AO 1 0 5 4 5 4 3	3/1989	Japanese Patent Abstr.			Yes
B18 A6 0 1 7 8 5 6 4	2/1986	Japanese Patent Abstr.			Yes

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent pages, Etc.)

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## U. S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE
PMC	A51 4 4 4 9 2 0 5	5/1984	Hoffman			
	A52 4 8 0 5 1 0 9	2/1989	Kroll et al.			
	A53 4 8 2 1 2 4 0	4/1989	Nakamura et al.			
	A54 4 8 8 2 6 4 2	11/1989	Taylor et al.			
	A55 4 9 2 0 4 7 8	4/1990	Furuya et al.			
	A56 4 9 3 3 9 0 6	6/1990	Terada et al.			
	A57 5 1 3 6 5 4 6	8/1992	Fukuda et al.			
	A58 5 0 5 1 8 8 7	9/1991	Berger et al.			
	A59 4 9 1 6 6 0 5	4/1990	Beardsley et al.			
	A60 4 4 6 6 0 5 9	8/1984	Bastian et al.			
	A61 5 0 4 3 9 4 0	8/1991	Harari			
	A62 5 1 7 2 3 3 8	12/1992	Mehrotra et al.			
	A63 5 6 7 1 2 2 9	9/1997	Harari et al.			
	A64 5 2 9 7 1 4 8	3/1994	Harari et al.			
	A65 5 3 5 9 5 6 9	10/1994	Fujita et al.			
	A66 5 4 3 0 8 5 9	7/1995	Norman et al.			
	A67 5 4 8 8 7 1 1	1/1996	Hewitt et al.			
	A68 5 6 0 6 5 3 2	2/1997	Lambrache et al.			
	A69 5 5 4 6 3 5 1	8/1996	Tanaka et al.			

## FOREIGN PATENT DOCUMENTS

DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANS. (YES/1)
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## OTHER DOCUMENTS (Including Author, Title, Date, Pertinent pages, Etc.)

C11	Bleiker et al., "A Four-State EEPROM Using Floating-Gate Memory Cells," IEEE Journal of Solid-State Circuits, SC-22 (1987) June, No. 3, New York, NY, USA
C12	Intel Corporation, 27F256, 256K (32K x 8) CMOS FLASH MEMORY, May 1988, pp. 1-21

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## U. S. PATENT DOCUMENTS

*EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILIN DATE
pme	A70 5 0 9 5 3 4 4	3/1992	Harari			
	A71 4 2 7 2 8 3 0	6/1981	Moench			
	A72 4 2 8 7 5 7 0	7/1981	Stark			
	A73 4 5 8 6 1 6 3	4/1986	Koike			
	A74 4 6 5 3 0 2 3	3/1987	Suzuki et al.			
	A75 4 8 4 7 8 0 8	7/1989	Kobatake			

## FOREIGN PATENT DOCUMENTS

DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANS (YES/
C13	Krick, "Three-State MNOS FET Memory Array," IBM Technical Disclosure Bulletin, Vol. 18, No. 12, May 1976, pp. 4192-4193				
C14	Alberts C.S. et al., "Multi-Bit Storage FET EAROM Cell," IBM Technical Disclosure Bulletin, Vol. 24, No. 74, December 1981, pp 3311-3314				
C15	Horiguchi et al., "An Experimental Large-Capacity Semiconductor File Memory Using 16-Levels Cell Storage," IEEE Journal of Solid-State Circuits, Vol. 23, No. 1, February 1988, pp.27-33				
C16	Furuyama, et al., "An Experimental 2-Bit/Cell Storage Dram for Macro Cell or Memory-on-logic Application," 1988 IEEE, pp. 4.4.1 to 4.4.4				
C17	Stark, "Two Bits Per Cell ROM," 1981 IEEE Catalog No. 81-CH1626-1, pp. 201-212				

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020227 LMS1/0120  
MAJESTIC PARSONS SIEBERT & HSUE  
FOUR EMBARCADERO CENTER SUITE 1100  
SAN FRANCISCO CA 94111-4106

EXAMINER
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CHUNG, P

ART UNIT	PAPER NUMBER
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2784

DATE MAILED:

01/20/99

## NOTICE OF ALLOWABILITY

## PART I.

1. ☒ This communication is responsive to US filed on 2/17/98 & amendment filed on 2/17/98 4/13/98
2. ☒ All the claims being allowable. PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice Of Allowance And Issue Fee Due or other appropriate communication will be sent in due course.
3. ☒ The allowed claims are 1-26
4. ☒ The drawings filed on 7/16/97 are acceptable.
5. ☐ Acknowledgment is made of the claim for priority under 35 U.S.C. 119. The certified copy has ☐ been received. ☐ not been received. ☐ been filed in parent application Serial No. \_\_\_\_\_, filed on \_\_\_\_\_
6. ☐ Note the attached Examiner's Amendment.
7. ☐ Note the attached Examiner Interview Summary Record, PTOL-413.
8. ☐ Note the attached Examiner's Statement of Reasons for Allowance.
9. ☐ Note the attached NOTICE OF REFERENCES CITED, PTO-892.
10. ☒ Note the attached INFORMATION DISCLOSURE CITATION, PTO-1449.

## PART II.

A SHORTENED STATUTORY PERIOD FOR RESPONSE to comply with the requirements noted below is set to EXPIRE THREE MONTHS FROM THE "DATE MAILED" indicated on this form. Failure to timely comply will result in the ABANDONMENT of this application. Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

1. ☐ Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL APPLICATION, PTO-152, which discloses that the oath or declaration is deficient. A SUBSTITUTE OATH OR DECLARATION IS REQUIRED.
2. ☐ APPLICANT MUST MAKE THE DRAWING CHANGES INDICATED BELOW IN THE MANNER SET FORTH ON THE REVERSE SIDE OF THIS PAPER.
  - a. ☐ Drawing informalities are indicated on the NOTICE RE PATENT DRAWINGS, PTO-948, attached hereto or to Paper No. \_\_\_\_\_ CORRECTION IS REQUIRED.
  - b. ☐ The proposed drawing correction filed on \_\_\_\_\_ has been approved by the examiner. CORRECTION IS REQUIRED.
  - c. ☐ Approved drawing corrections are described by the examiner in the attached EXAMINER'S AMENDMENT. CORRECTION IS REQUIRED.
  - d. ☐ Formal drawings are now REQUIRED.

Any response to this letter should include in the upper right hand corner, the following information from the NOTICE OF ALLOWANCE AND ISSUE FEE DUE: ISSUE BATCH NUMBER, DATE OF THE NOTICE OF ALLOWANCE, AND SERIAL NUMBER.

## Attachments:

- Examiner's Amendment
- Examiner Interview Summary Record, PTOL-413
- Reasons for Allowance
- Notice of References Cited, PTO-892
- Information Disclosure Citation, PTO-1449

- Notice of Informal Application, PTO-152
- Notice re Patent Drawings, PTO-948
- Listing of Bonded Draftsmen
- Other

*Phung M. Chung*  
PHUNG M. CHUNG  
PRIMARY EXAMINER